Zashchita Metallov 1996 vol.32 N6, pages 658-661

Effect of unconventional physical treatments on the properties of anodic oxide coatings obtained in a suspension electrolyte

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Abstract

The new data for certain physical effects on anode-oxide coating deposition (ultrasonic field) and on coating (low-temperature plasma, thermal effects and short-time thermal shocks), formed in the electrolyte-suspension. The alumina powder is a dispersed phase in oxidizing AD-1M aluminum alloy. It is shown that the corrosion and thermal resistances are improved and the porosity is reduced under ultrasonic field conditions of oxidizing. The low-temperature plasma processing leads to crack formation on the coating surface independent of alumina presence.